Rapid Assessment Reference Condition Model

The Rapid Assessment is a component of the LANDFIRE project. Reference condition models for the Rapid Assessment were created through a series of expert workshops and a peer-review process in 2004-2005. For more information, please visit www.landfire.gov. Please direct questions to helpdesk@landfire.gov.

Potential Natural Vegetation Group (PNVG):

R0PSMEdy **Xeric Interior Douglas-Fir**

General Information

Contributors *(additional contributors may be listed under "Model Evolution and Comments")*

Modelers

Jeff Jones jjones@fs.fed.us

Reviewers

Steve Barrett sbarrett@mtdig.net

Cathy Stewart cstewart@fs.fed.us

Vegetation Type

Forested

Dominant Species*

PSEUD7
ARTRV2
FEID

General Model Sources

- [x] Literature
- [ ] Local Data
- [x] Expert Estimate

LANDFIRE Mapping Zones

10 21
19 22
20 29

Rapid Assessment Model Zones

- [ ] California
- [ ] Great Basin
- [ ] Great Lakes
- [ ] Northeast
- [ ] Northern Plains
- [x] N-Cent.Rockies
- [ ] Pacific Northwest
- [ ] South Central
- [ ] Southeast
- [ ] S. Appalachians
- [ ] Southwest

Geographic Range

East of the Continental Divide in northern Montana, eastern Idaho, and Wyoming.

Biophysical Site Description

The xeric Douglas-fir type primarily exists on lower foothills immediately above grasslands/ shrublands in elevation. Slopes range from gentle to steep, but aspect is primarily south-facing.

Vegetation Description

Generally dominated by Douglas-fir with an understory of bunchgrasses and sparse shrubs. Stands are typically open and dominated by moderate to large diameter Douglas-fir.

Disturbance Description

Fire regime is predominantly (70%) frequent, low severity fires with a MFI of approximately 30 years. Mixed-severity fires occur with a typical frequency of 30-50 years primarily in dense stands (classes B and E). Native American burning was likely significant in many of these low-elevation forests.

Adjacency or Identification Concerns

This PNVG corresponds with cool, dry Douglas-fir habitat types (Pfister et al. 1977). Ecotone with mountain grasslands/ sagebrush. Class A in this model is equivalent with a Class A in neighboring grassland/shrubland types.

This PNVG may be similar to the PNVG R2PSMEdy from the Great Basin model zone.

Scale Description

Sources of Scale Data [ ] Literature [ ] Local Data [x] Expert Estimate

Since this type is dominated by surface fires and because this type represents an ecotone, patches tended to be smaller in size. Consequently, fire sizes were also relatively small. Analysis areas of several thousand acres would probably be adequate.

*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit http://plants.usda.gov.

Issues/Problems

Model Evolution and Comments

Workshop code was DFIR3.

Review comments incorporated on 3/16/2005, resulting in clarification in description and slightly more surface fires and higher MFI overall.

Succession Classes

Succession classes are the equivalent of "Vegetation Fuel Classes" as defined in the Interagency FRCC Guidebook (www.frcc.gov).

Class A 10 %

Early1 PostRep

Description

Dominated by bunchgrasses, and seed/sapling sized Douglas-fir.

Indicator Species* and Canopy Position

PSEUD7
FEID
ARTRV2

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	20 %
Height	no data	no data
Tree Size Class	no data	

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class B 5 %

Mid1 Closed

Description

Relatively dense pole sized Douglas-fir. Sagebrush has largely dropped out of the stand. Mixed severity fire may open up the canopy.

Indicator Species* and Canopy Position

PSEUD7

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	40 %	100 %
Height	no data	no data
Tree Size Class	no data	

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Class C 25 %

Mid1 Open

Description

Open poles with bunchgrass and sagebrush understory. Surface fires maintain the open condition.

Indicator Species* and Canopy Position

PSEUD7
FEID
ARTRV2

Upper Layer Lifeform

☐ Herbaceous
☐ Shrub
☐ Tree

Fuel Model no data

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	40 %
Height	no data	no data
Tree Size Class	no data	

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

---

*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit http://plants.usda.gov.

Class D 50 %

Late1 Open

Description

Open canopy of medium to large diameter trees with bunchgrass and sagebrush understory. Surface fires maintain the open condition.

Indicator Species* and Canopy Position

PSEUD7
FEID
ARTRV2

Structure Data (for upper layer lifeform)

	Min	Max
Cover	0 %	40 %
Height	no data	no data
Tree Size Class	no data	

Upper Layer Lifeform

- ☐ Herbaceous
- ☐ Shrub
- ☐ Tree

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Fuel Model no data

Class E 10 %

Late1 Closed

Description

Multi-storied Douglas-fir with sparse understory. Mixed severity fire may open up the canopy.

Indicator Species* and Canopy Position

PSEUD7

Structure Data (for upper layer lifeform)

	Min	Max
Cover	40 %	100 %
Height	no data	no data
Tree Size Class	no data	

Upper Layer Lifeform

- ☐ Herbaceous
- ☐ Shrub
- ☐ Tree

☐ Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

Fuel Model no data

Disturbances

Non-Fire Disturbances Modeled

- ☑ Insects/Disease
- ☑ Wind/Weather/Stress
- ☐ Native Grazing
- ☐ Competition
- ☐ Other:
- ☐ Other:

Fire Regime Group: 1

I: 0-35 year frequency, low and mixed severity
II: 0-35 year frequency, replacement severity
III: 35-200 year frequency, low and mixed severity
IV: 35-200 year frequency, replacement severity
V: 200+ year frequency, replacement severity

Historical Fire Size (acres)

Avg:
Min:
Max:

Fire Intervals (FI):

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Minimum and maximum show the relative range of fire intervals, if known. Probability is the inverse of fire interval in years and is used in reference condition modeling. Percent of all fires is the percent of all fires in that severity class. All values are estimates and not precise.

Sources of Fire Regime Data

- ☑ Literature
- ☐ Local Data
- ☑ Expert Estimate

	Avg FI	*Min FI*	*Max FI*	*Probability*	*Percent of All Fires*
Replacement	165	100	300	0.00606	12
Mixed	100	30	100	0.01	19
Surface	28	15	40	0.03571	69
All Fires	19			0.05177	

*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit http://plants.usda.gov.

References

Barrett, Steve. 2004. Personal communication and fire history database. June 17, 2004.

Barrett, S. W. 2004. Fire Regimes in the Northern Rockies. Fire Management Today 64(2): 32-38.

Barrett, S. W. 2004. Altered fire intervals and fire cycles in the Northern Rockies. Fire Management Today 64(3): 25-29.

Fischer, William C.; Clayton, Bruce D. 1983. Fire ecology of Montana forest habitat types east of the Continental Divide. Gen. Tech. Rep. INT-141. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 83 p.

Pfister, R. D., B. L. Kovalchik, S. F. Arno, and R. C. Presby. 1977. Forest habitat types of Montana. USDA Forest Service, Intermountain Forest and Range Experiment Station, General Technical Report, INT-34.